AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (*Currently Amended*) A method of optimizing the performance of a mobile radio system multicarrier transmitter using processing operations ~~including~~comprising discrete Fourier transform (DFT) computation, carriers shaping and/or filtering in the frequency domain, inverse discrete Fourier transform (IDFT) computation, overlapping of processed sample blocks, and oversampling, wherein, for each carrier, the input sampling frequency corresponds to the modulation rate of the input signal~~, a given order of magnitude of the output sampling frequency, and a given order of magnitude of the required frequency resolution~~, and the length LDFT of the DFT and the length LIDFT of the IDFT are chosen in such a manner as to enable said oversampling to be performed together with said filtering~~the finest possible choice of the percentage overlap and/or the oversampling factor~~.

2. (*Original*) A method according to claim 1, wherein, if the ratio LIDFT/LDFT is not an integer, the denominator of the fraction LIDFT/LDFT when simplified is chosen to be as small as possible, to provide the finest possible choice of the length L of the blocks of samples with no overlap at the input of the DFT, and therefore the finest possible choice of the percentage overlap.

3. (*Currently Amended*) The ~~A~~ method according to claim 2, wherein, the input sampling frequency ~~being~~is equal to 3.84 MHz, the required value of the output sampling frequency ~~being close to~~is approximately 80 MHz, the required value of the frequency resolution ~~being close to~~is approximately 80 kHz, LDFT is chosen to be equal to 48 and LIDFT is chosen to be equal to 1024.

4. (*Currently Amended*) The ~~A~~ method according to claim 1, wherein, if the ratio LDFT/LIDFT is an integer, the lengths LDFT and LIDFT are chosen in such a manner as to provide the finest possible choice of the oversampling factor or the output sampling frequency.

5. (*Currently Amended*) The ~~A~~ method according to claim 4, wherein, the input sampling frequency being equal to 3.84 MHz, the required value of the output sampling frequency is approximately ~~being close to~~ 80 MHz, and the required value of the frequency resolution is approximately ~~being close to~~ 80 kHz, LDFT is chosen to be equal to 45 and LIDFT is chosen to be equal to 1260.

6. (*Original*) A method of optimizing the performance of a mobile radio system transmitter using processing operations including discrete Fourier transform (DFT) computation, filtering in the frequency domain, and inverse discrete Fourier transform (IDFT) computation, wherein, before effecting said DFT computation, a frequency shift DF is applied in the time domain equal to the algebraic difference between the required central frequency of the corresponding filtered signal and the closest frequency sample coming from said DFT computation.

7. (*Original*) A method of optimizing the performance of a mobile radio system transmitter using processing operations including discrete Fourier transform (DFT) computation, filtering in the frequency domain, and inverse discrete Fourier transform (IDFT) computation, wherein, before effecting said DFT computation, to compensate phase jumps between samples at the output of the IDFT, a complex multiplication is effected of the input samples by a complex of unit modulus and opposite phase to the phase jump to be compensated.

8. (*Original*) A method according to claim 7, wherein the phase jump to be compensated being periodic and predictable by the function L/LDFT, said complex is expressed in the form:

decp = exp(2*j*pi*numc/LDFT*L*(NUMT-1)),

where:

NUMT is the relative chronological number of the slices or blocks of L samples, and

numc is the IDFT channel number corresponding to the central frequency of the carrier concerned or to the ratio Fc/Fs modulo LIDFT (Fc is the required carrier frequency).

9. (*Original*) A method of optimizing the performance of a mobile radio system transmitter using processing operations including discrete Fourier transform (DFT) computation, filtering in the frequency domain, inverse discrete Fourier transform (IDFT) computation, and overlapping of processed sample series or blocks, said overlapping being obtained by adding LDFT - L zeros to blocks of L incident signal samples to obtain blocks of LDFT samples to be applied to a DFT of length LDFT, and wherein the LDFT samples of said blocks are rotated in such manner that the LDFT - L zeros are placed as close as possible to the center of the blocks and the L signal samples are placed on either side of the LDFT - L zeros.

10. (*Original*) A method according to claim 9, wherein said blocks are rotated in such a manner that the LDFT - L zeros are placed as close as possible to the center of the blocks, to within one sample if L is odd.

11. (*Currently Amended*) A mobile radio system transmitter ~~including~~comprising means for performing ~~implementing a method according to claim 1.~~ processing operations comprising discrete Fourier transform (DFT) computation, carriers shaping and/or filtering in the frequency domain, inverse discrete Fourier transform (IDFT) computation, overlapping of processed sample blocks, and oversampling, wherein, for each carrier, the input sampling frequency corresponds to the modulation rate of the input signal, and the length LDFT of the DFT and the length LIDFT of the IDFT are chosen in such a manner as to enable said oversampling to be performed together with said filtering.

12. (*New*) A mobile radio system transmitter comprising:

means for performing processing operations comprising discrete Fourier transform (DFT) computation, filtering in the frequency domain, and inverse discrete Fourier transform (IDFT) computation, and

means for, before effecting said DFT computation, applying in the time domain a frequency shift DF equal to the algebraic difference between the required central frequency of the corresponding filtered signal and the closest frequency sample coming from said DFT computation.

13. (*New*) A mobile radio system transmitter comprising:

means for performing processing operations comprising discrete Fourier transform (DFT) computation, filtering in the frequency domain, and inverse discrete Fourier transform (IDFT) computation, and

means for, before effecting said DFT computation, compensating phase jumps between samples at the output of the IDFT, effecting a complex multiplication of the input samples by a complex of unit modulus and opposite phase to the phase jump to be compensated.

14. (*New*) A mobile radio system transmitter comprising:

means for performing processing operations comprising discrete Fourier transform (DFT) computation, filtering in the frequency domain, inverse discrete Fourier transform (IDFT) computation, and overlapping of processed sample series or blocks, said overlapping being obtained by adding LDFT - L zeros to blocks of L incident signal samples to obtain blocks of LDFT samples to be applied to a DFT of length LDFT, and

means for rotating the LDFT samples of said blocks in such manner that the LDFT - L zeros are placed as close as possible to the center of the blocks and the L signal samples are placed on either side of the LDFT - L zeros.